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| 09/601,384      | 07/27/2000  | Lester F. Ludwig     | COLB-002/01US       | 2926             |

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| EXAMINER |
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SELLERS, DANIEL R

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| ART UNIT | PAPER NUMBER |
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2615

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 01/24/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

09/601,384

Applicant(s)

LUDWIG, LESTER F.

Examiner

Daniel R. Sellers

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-10 and 50-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-10 and 50-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9 refers to the A/V elements for where there is no support in claim 6. This claim finds support in claim 7, and therefore claim 9 is treated as further limiting claim 7 in the following action.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 4, 51, 54-62, and 64-66** are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Stewart (USPN 6535610).
5. Regarding **claim 4**, see Stewart.

*A device for use in association with a multimedia system capable of reproducing at least audio signals at a multimedia workstation (Col. 3, line 65 - Col. 4, line 19), the device comprising:  
at least one input for receiving audio signals from a plurality of microphones (Col. 4, lines 5-7),*

and

*a synthetic aperture microphone processing unit receiving the audio signals from the input and generating therefrom a monaural microphone signal having a magnitude predominately responsive to amount of energy present within at least one designated hot-spot and reduced contributions from audio energy entering from a rejection region (Col. 5, lines 50-63, Col. 6, lines 9-17, and Fig. 7).*

Stewart teaches a multimedia system with synthetic aperture microphone processing features using a plurality of microphones.

6. Regarding **claim 51**, the further limitation of claim 4, see the preceding argument with respect to claim 4. The combination teaches this feature (Col. 6, lines 9-17).

7. Regarding **claim 54**, see the preceding argument with respect to claim 4. Stewart teaches these features, wherein a multimedia collaboration device receives a video signal (Fig. 1, unit 150, Fig. 3, unit 338, and Fig. 4, unit 430).

8. Regarding **claim 55**, the further limitation of claim 54, Stewart teaches multiple audio signals (Fig. 3, units 342, 344, and 346).

9. Regarding **claim 56**, the further limitation of claim 55, Stewart teaches a computer used for teleconferencing, wherein it is inherent that the device can receive a primary digital stream (Col. 1, lines 46-50; Stewart improves upon the directional microphones with beamforming).

10. Regarding **claim 57**, the further limitation of claim 54, Stewart teaches a video conferencing system, wherein it is inherent that a network port is coupled to a workstation, or computer (Col. 8, lines 53-65).

11. Regarding **claim 58**, the further limitation of claim 54, see the preceding argument with respect to claim 57. Stewart teaches a network that can transmit the audio and video needed in video conferencing.

12. Regarding **claim 59**, the further limitation of claim 58, see the preceding

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argument with respect to claim 58. Stewart teaches a video conferencing system, wherein it is inherent that an auxiliary audio signal can be received, especially when several persons are actively engaged in a conference.

13. Regarding **claim 60**, the further limitation of claim 59, see the preceding argument with respect to claim 58. Stewart teaches a system that provides video reception of at least a primary signal.

14. Regarding **claim 61**, the further limitation of claim 54, Stewart teaches a left and right synthetic microphone model (Fig. 2a) and a signal summing circuit coupled to these models (Fig. 2a, unit 290).

15. Regarding **claim 62**, the further limitation of claim 54, Stewart teaches this feature. A synthetic aperture microphone processing unit performs at least a delay operation on the audio signal (Fig. 2a, units 202, 204, and 206).

16. Regarding **claim 64**, see the preceding argument with respect to claim 54. Stewart teaches these features.

Regarding **claim 65**, the further limitation of claim 64, see the preceding argument with respect to claim 61. Stewart teaches these features.

17. Regarding **claim 66**, the further limitation of claim 64, see the preceding argument with respect to claim 62. Stewart teaches these features.

#### ***Claim Rejections - 35 USC § 103***

18. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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19. **Claims 2, 3, and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Minami (previously cited) in view of well-known prior art.

20. Regarding **claim 2**, Minami teaches a device with a plurality of microphones (Col. 8, lines 13-19 and Fig. 3, units 101R and 101L) configured to selectively operate to perform adaptive acoustic stereo echo-canceling operations (Col. 2, line 59 - Col. 3, line 66 and Col. 4, lines 44-46) on audio signals captured by at least some of the associated microphones to produce a stereo echo-canceling audio signal (Col. 4, line 60 - Col. 5, line 28).

Minami teaches the use of a multimedia terminal (Fig. 9 and 10) to operate as outlined above, but Minami does not teach selectively operating to perform the echo-canceling operations. Personal computers are well-known in the art at the time of the invention, and the Office takes *Official Notice* that a personal computer (PC) could be used as a multimedia terminal. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Minami and the well-known prior art for the purpose of enabling the multimedia player to play a larger array of media. It would be inherent that a PC would be configured to selectively operate the echo-canceling operations, as taught by Minami, because in certain situations the microphone input is not needed (e.g. while listening to a compact audio disc).

21. Regarding **claim 3**, the further limitation of claim 2, see Minami

... wherein  
the adaptive acoustic stereo echo-canceling and synthetic microphone processing capabilities are combined in a single packaging. (Fig. 9, units 510<sub>1</sub>-510<sub>4</sub>, 600, and 720)

22. Minami also teaches that the device has synthetic aperture microphone

processing capabilities, such as adjusting transfer functions between a plurality of microphones and speakers (Col. 4, line 66 – Col. 5, line 52). Furthermore, it is inherent that the apparatus, taught by Minami, is combined in a single packaging.

23. Regarding **claim 7**, the further limitation of claim 2, the combination teaches a device comprising A/V elements for audio and video signal reception and transmission (Fig. 3, units 200, 300, and 400). The combination also teaches a device that performs audio and video signal encoding and decoding (Col. 9, line 60 - Col. 10, line 5, Col. 15, lines 8-11, Col. 25, lines 40-42, and Fig. 3, units 201 and 401).

24. **Claims 5, 6, 8-10, 50, 52, 53, and 63** are rejected under 35 U.S.C. 103(a) as being unpatentable over Minami in view of well-known prior art as applied to claim 2 above, and further in view of Marash (previously cited).

25. Regarding **claim 5**, the further limitation of claim 2, see Marash

*... wherein  
the synthetic aperture microphone processing capabilities include the capability to adjust a position of a spatial region corresponding to the area of maximum sensitivity of the synthetic aperture microphone function. (Col. 6, lines 15-21 and Col. 8, lines 24-64)*

Minami teaches a system with the features of the parent claim, but does not teach that the processing capabilities include the capability to adjust the sensitivity of a microphone array corresponding to a particular region in space. Marash teaches that the sensitivity can be adjusted, as shown above. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Minami, well-known art, and Marash for the purpose of suppressing unwanted interference (Marash, Col. 3, lines 32-34).

26. Regarding **claim 6**, the further limitation of claim 2, see the preceding argument

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with respect to claim 5. The combination of Minami, well-known prior art, and Marash teaches a device of claim 2, wherein the synthetic aperture microphone processing comprises performing at least one of delay or frequency dispersion operation on the audio signal (Col. 6, lines 36-55).

27. Regarding **claim 8**, the further limitation of claim 6, Minami discusses transmission capabilities including analog and digital methods, which inherently comprise conversion elements for supporting analog and digital networks (Col. 1, lines 29-45). It would have been obvious to utilize a plurality of the different networks for different tasks suited to each particular network.

28. Regarding **claim 9**, the further limitation of claim 6, see the preceding argument with respect to claim 1. The combination teaches a multimedia PC, which inherently has a plurality of audio inputs and outputs.

29. Regarding **claim 10**, the further limitation of claim 9, see the preceding argument with respect to claim 9. The combination teaches at least a primary digital stream, wherein it is inherent that the multimedia PC has elements to provide support for a first primary stream.

30. Regarding **claim 50**, the further limitation of claim 3, see the preceding argument with respect to claim 5. The combination teaches an adjustment of the sensitivity of microphones with respect to a spatial region.

31. Regarding **claim 52**, the further limitation of claim 2, Marash teaches a synthetic left and right microphone modules (Col. 5, lines 50-61, Fig. 1, unit 3 and Fig. 4, units 40a-40d), and Marash teaches a signal summing circuit coupled to the models (Fig. 1,



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unit 8).

32. Regarding **claim 53**, the further limitation of claim 52, see the preceding argument with respect to claim 6. The combination teaches these features.

33. Regarding **claim 63**, the further limitation of claim 2, see the preceding argument with respect to claim 5. The combination implicitly uses the same microphone signals to produce either the echo-canceling signal or the synthetic aperture signal.

### ***Response to Arguments***

34. Applicant's arguments with respect to claims 2-10 and 50-66 have been considered but are moot in view of the new ground(s) of rejection

### ***Conclusion***

35. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel R. Sellers whose telephone number is 571-272-7528. The examiner can normally be reached Monday to Friday, 9am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DRS

  
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SUPERVISORY PATENT EXAMINER